NDI RECOGNITION SYSTEMS

Serious about ANPR. Serious about Service.

Foreword from Alan Quinn CEO

With high-quality, innovative Automatic Number Plate Recognition (ANPR) and Mobile Data solutions at the heart of our product range the mission of NDI-RS is to provide cost effective, market leading customer service, hardware products, software applications and systems integration solutions to the public and private sectors.

To fulfil our mission we are at the leading edge of technological advances and the changing environment, continuously innovating and improving our unique portfolio of products to exceed the expectations of our customers.

Customer care is central to our dynamic work ethic with a team of professionals who put you, the customer, first by delivering world class products and services enabling you to fulfil your role of protecting and serving the public.

At NDI-RS we pride and measure ourselves on our, and your, results.

Whether your area of business is the public or private sector NDI-RS has the focus and pedigree to be your global provider of choice for world-class ANPR, Mobile Data and Systems Integration Solutions.

Existing and new customers alike, we look forward to the opportunity of working with you in the future.

Best Regards,

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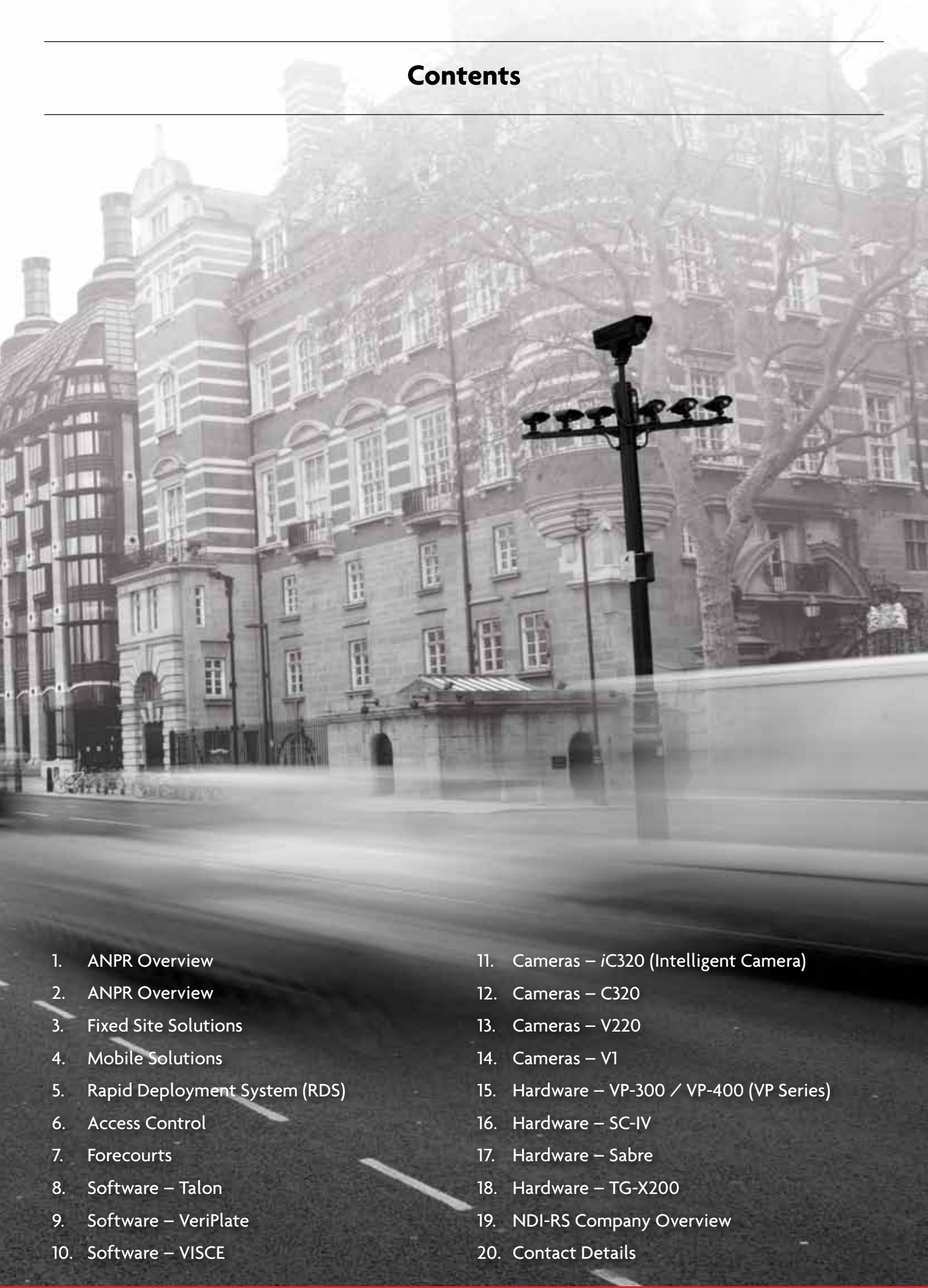

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ANPR overview

Automatic Number Plate Recognition (ANPR) systems continuously scan and read number plates under various lighting and weather conditions, comparing them against a database or "hotlist" of wanted vehicles. If a scanned plate matches a plate in the database, the system records a "hit" and notifies the user. NDI-RS, a global provider of ANPR solutions, offers a full range of ANPR cameras and software designed to meet the unique requirements of both public and private agencies.

Generate intelligence & improve productivity

ANPR systems can scan a number of plates per second, far more than any individual, increasing your organisation's productivity and effectiveness. ANPR databases can also be customised to the user's specific requirements, for example; Police services can utilise crime databases and private companies can use authorised lists of employees or residents for access control or parking management.

Number plates collected by both fixed and mobile systems are stored, along with colour pictures of the vehicle and location data. The database is fully searchable and can be analysed to assist with law enforcement, city and traffic planning, parking usage and capacity and much more.

Increase safety

Information generated by ANPR systems is a valuable asset to law enforcement, security personnel, or property owners and operators, providing them with critical intelligence about vehicles within seconds. The system quickly compares reads against defined hotlists, increasing vigilance, improving accuracy, and assisting in surveillance.

Enhance revenue

Data from ANPR systems can assist in collecting parking fees, unpaid fines or tickets, improper permits, and much more. Users can quickly identify these vehicles and capture lost revenue.

Neural Network Technology vs. OCR

Leading Edge Technology – The Neural Network Approach

The NDI-RS Talon™ Recognition Engine represents an alternative direction to conventional OCR template or rule based solutions in solving the challenges associated with ANPR. Instead of relying on these conventional processes, Talon uses pattern recognition techniques incorporating neural networks. Neural networks offer much greater potential in terms of performance than conventional pattern recognition methods. The networks are not programmed in the traditional sense but are trained by example on a large number of repetitions of character sets. As a result, the network builds a statistical model which focuses on the features making each individual character distinctive, rather than forming a definitive.

Our understanding and experience of neural networks has enabled NDI-RS engineers to build a multi-national neural network. This retains the capabilities of the earlier UK product but recognises number plates of many other countries at the same time. The performance on individual country plates is not diminished. Furthermore, additional country plate reading capabilities can be added by retraining with new video data. In a European, cross border, exercise it correctly recognised 97% of all captured number plates.

Applications

Law enforcement and security

- **Stolen vehicle identification:** NDI-RS fixed and mobile systems can assist agencies with stolen vehicle identification and recovery.
- **Surveillance and investigation:** Data collected by NDI-RS ANPR systems can be used for crime analysis and investigation, placing suspects in specific locations at specific times. When used by officers patrolling specific areas, such as schools, NDI-RS solutions can quickly identify registered offenders and allow officers to intervene. Deployed at specific checkpoints, NDI-RS systems can rapidly identify drivers with previous offences.
- **Data Analysis:** While NDI-RS ANPR systems can assist with surveillance and identify suspect vehicles, data obtained can be shared with other agencies to analyse activities and develop intelligence profiles.

Intelligent transportation systems

- **Travel time systems:** Traffic engineers and planners can use the UTMC compliant NDI-RS ANPR systems to calculate reliable travel times and develop usage data, along with monitoring delays caused by accidents and congestion. By integrating NDI-RS cameras into weigh stations and other enforcement locations, commercial vehicles can be tracked and monitored.

Parking and Access Control

- **Automated access control:** NDI-RS ANPR systems can improve the physical security of specific locations by automating access control, capturing vehicle data and verifying it against lists of authorised vehicles. Both government and private sites can automate operations and monitor vehicles to manage site capacity and usage.
- **Parking revenue systems:** Integrating NDI-RS solutions into parking revenue systems allows parking vendors to associate charges with specific vehicles and not with tickets, which can be lost or altered.

Fixed Site Solutions

Fixed ANPR systems are ideal for strategic monitoring and data collection along roadways, bridges, tunnels, key road junctions, entrances to buildings, or other critical infrastructure. NDI-RS fixed camera installations can be attached to buildings, available street furniture, or overpasses in specific locations such as choke points, high-traffic routes or geographical boundaries.

Fixed ANPR systems improve safety and enhance investigations by continuously monitoring vehicles and matching them against databases 24 hours a day, seven days a week. Vehicles of interest generate alerts that can be monitored in a command centre, e-mailed to authorised personnel, or communicated to a mobile system. The high volume of data generated can be stored in the VISCE™ Back Office Intelligence system for later searches or analysis.

Mobile Solutions

Mobile ANPR solutions from NDI-RS are ideal for tactical operations, providing additional 'reach' and flexibility to your organisation. Typically mounted on a vehicle a mobile ANPR system captures plate numbers and colour images, analyses the reads, generates alerts for plates of interest and stores all of the data from multiple lanes of traffic while the vehicle is being driven.

All of the information collected can be searched, analysed, and stored in the VISCE™ Back Office Intelligence system. Mobile ANPR systems can identify improperly registered vehicles; vehicles with unpaid tickets, licences, or permits; or vehicles that aren't authorised to be in a specific parking facility, community or restricted area. NDI-RS mobile ANPR solutions help your organisation improve productivity, generate revenue, and increase safety.

Rapid Deployment System (RDS)

The Rapid Deployment System™ (RDS) is an easy and cost-effective way to rapidly deploy Automatic Number Plate Recognition (ANPR) technology. Designed for temporary use as a mobile ANPR system, the RDS provides extreme portability for movement from vehicle to vehicle in minutes. The RDS is also a useful tool for temporary roadside deployments and vehicle checkpoints.

NDI-RS RDS solution offers a true plug and play capability with ease of installation

The RDS provides up to two (2) V220™ ANPR cameras with window or magnetic mounts, a TG-X200™ USB frame grabber, USB cable, camera cables, 12V power cable, GPS module, VeriPlate™ installation CD, and instructional documentation. Packaged in a rugged military case for ease of transport, the RDS has everything you need to begin using ANPR technology on your existing laptop or Mobile Data Terminal within minutes and with minimal investment.

VeriPlate Mobile ANPR Software

With simple and intuitive user interfaces, VeriPlate leverages the powerful and highly accurate Talon™ ANPR recognition engine.

V220 ANPR Camera

The V220 offers advanced dual-lens (infrared and colour) ANPR camera technology with exclusive zoom capability to accommodate any tactical need.

TG-X200 USB Frame Grabber

The TG-X200 provides a compact interface for up to two (2) V220 cameras. The TG-X200 allows for these cameras to be powered and connected to an existing laptop or Mobile Data Terminal from a single USB connection.

Features

- Leverages existing laptop or Mobile Data Terminal without the need for separate processor
- Operational within minutes
- Adaptable for use in traffic, covert and vehicle checkpoint operations
- Up to two (2) V220 ANPR cameras with removable window or magnetic mounts
- Cost effective for any budget
- Seamless interface with VISCE™ intelligence software
- Two multi-purpose zoom cameras tie directly into your existing laptop
- No permanent installation is needed

Access Control

Access Control Automatic Number Plate Recognition (ANPR) technology provides one of the most efficient ways of controlling traffic. The NDI-RS ANPR Access Control System is the ideal choice for site vehicle control, full of great features and functionality for a truly intuitive and user-friendly experience, it allows vehicle rights to be set up quickly and efficiently and can also provide full vehicle and people management modules, should you require a more complex management system.

The interactive Gate House application is designed with simplicity in mind whilst maintaining all sources of information on one screen.

The system is fully automated and operates 24/7 365 days a year under all weather conditions. Depending on your requirements, the system can operate with or without human intervention

Applications

- Car parks
- Supermarkets and Shopping Centres
- Airports, Railways and Bus Stations
- Business Parks, Office and Industrial Sites
- Gated Communities and Residential Areas
- Transport Logistics and Petrol Stations

Comprehensive Reports Generation

- Parking Capacity
- Arrival and Departure Patterns
- Parking Dwell Time
- Hotlists (white lists and blocked vehicle lists)
- Parking Patterns and Repeat Visitors
- Car Park Capacity

Features

- Talon™ ANPR Engine with Neural Network Technology
- Increased security and gatehouse efficiency
- Physical barriers/gates control
- Standard and bespoke reports
- Elimination of swipe cards and proximity devices
- Control vehicle access by day of week and/or time of day

Forecourt

The NDI-RS forecourt Automatic Number Plate Recognition (ANPR) solution provides a versatile and user friendly system ensuring an effective solution to the problem of forecourt drive off offences.

The solution captures each vehicle entering the forecourt and alerts staff to any potential problems. The user friendly interface displays an image to the staff of the offending vehicle, immediately providing a warning and allowing staff to restrict access to the pump for previous offenders. The system is designed to put the forecourt operator in complete control.

NDI-RS ANPR forecourt solution is an industry leading solution in the fight against forecourt crime.

Features

- Simple user interface
- Comprehensive Reporting System
- Perform searches on local data, or use the VISCE™ Back Office web application to search the central data repository
- National and local 'Watch Lists'
- Instant drive off notification
- Can be used with existing CCTV infrastructure

This solution uses VeriPlate™ ANPR software and can utilise existing CCTV cameras allowing staff to monitor traffic on their forecourt and to recognise, in real-time, known drive off / non-paying offenders by capturing vehicle registration details and checking them against the hotlists synchronised from the central database. This drive-off data can immediately be shared between forecourts ensuring the offender is unable to access other forecourts. It can also display site visits of specific vehicles including overview image with location, date and time, allowing you to analyse the data captured.

Talon ANPR Engine

Features

- Neural Network Technology
- NAAS compliant
- High recognition accuracy and speed
- 24hr / 365 day performance
- High performance automatic 'in picture' trigger
- International plate reading capability
- Accurately reads different sized plates, small or large, near or far
- Operates on various PC platforms
- Number plate image capture and colour overview image

The Talon™ Automatic Number Plate (ANPR) engine, since its first deployment almost 20 years ago, has been continually improved and enhanced and now provides one of the highest accuracy number plate recognition software engines in the world.

Powerful high performance ANPR software engine with Neural Network Technology

Talon runs on any modern PC platform (including Laptops and Tablets) running the Windows Operating system equipped with a suitable frame grabber. The engine supports multiple camera systems allowing simultaneous multi-lane capture and optimum recognition performance for stationary, low or high speed traffic within milliseconds.

With embedded Neural Network technology in its design, Talon provides among the highest accuracy and recognition speeds in the industry. Incorporating complex algorithms for image management and grouping analysis, Talon's neural network technology is able to recognise poorly defined, distorted and unclean characters during all weather conditions with high recognition accuracy. Due to the use of grey-scale character matching the Talon engine provides finer discriminations than binary or OCR methods thus ensuring a high confidence level in the accuracy of results.

Talon can be configured to distribute the captured data by a number of methods, which enables any connected client application system to store in a SQL Database where it can be cross referenced or matched against multiple hotlists to generate visual and audible alarms, audited, transmitted via LAN/WLAN/GPRS or 3G, archived or further interrogated.

Talon can be supplied as a standalone plate recognition engine or can be embedded into third party applications. NDI Recognition Systems also offers a full suite of application software for policing and public safety, access control and intelligent transportation systems.

Specifications

Supported Operating System:	Windows XP Pro SP3, Windows 7 & Windows 8 (32bit & 64bit)	**Image Requirements:**	Supported frame grabbers including: PCI, PCIe or USB Frame Grabbers. PAL and NTSC support. Additional support is provided for stored video file and individual image file input (bmp, jpg and dv-avi)
Recognition Engine:	Neural network technology with automatic in video trigger	**Typical Processing Time:**	200ms.
Recognition Accuracy:	98% typical	**Documentation:**	Comprehensive user manual
Plate Types Recognised:	Rectangular, square, normal and inverse characters. Recognition is country dependent, includes European, Middle Eastern, North and South American and Asian plates. A full list is available on request. Talon's neural network technology can be trained to recognise most international plate formats.	**Output:**	Including but not restricted to: Plate number in ASCII/recognition confidence level Plate region/country Date and time/GPS position Lane number/camera number Plate patch image/overview image
Plate Geometry:	Automatic detection and correction of plate rotation (+/-30deg) and character skew (+/-20deg).	**Additional Tools:**	Software Development Kit (SDK) for easy integration.
System Requirements (min):	1.8GHz CPU – Intel Core 2 Duo, 2GB RAM, PCI/PCIe/USB port for supported frame grabbers		

VeriPlate ANPR Software

VeriPlate™ is a clean and user-friendly interface for your Mobile or Fixed ANPR system, providing visibility to alerts, reads and much more. Providing all of the basic features one would expect and adding in some innovative and exclusive features, VeriPlate is designed for easy and efficient operation with minimal training.

VeriPlate is the most intuitive and feature-rich user interface available for ANPR.

The key to any successful system is the ease with which it can be incorporated into normal day-to-day operations. VeriPlate is optimised to work with your existing in-vehicle laptop, Mobile Data Terminal (MDT) or fixed ANPR processor, seamlessly integrating with other systems while not impacting mission critical operations.

VeriPlate is designed to work in the background allowing the operator to use other systems for standard patrol operations. A match of a number plate against a 'hotlist' will generate an alert screen and audible tone to indicate a vehicle of interest. VeriPlate offers multiple alert types with optional alert delivery methodologies.

VeriPlate features MapIt which uses GPS co-ordinates to allow the user to quickly view the location of the vehicle read / alert on a Microsoft MapPoint map. MapMe allows the user to quickly view their current location on a Microsoft MapPoint map.

Features

- Single screen visibility to captured plates, hotlists and alerts
- Large, high contrast buttons for touch screen operation
- MapMe and MapIt features to map vehicle or selected read / alert
- Intelligent hotlist synchronisation updates only the altered ANPR details and provides a record of last update and last sync
- Seamless two-way communication with VISCE™ Back Office

VISCE Back Office

The Vehicle Intelligence Server and Communications Engine (VISCE™) - is a web enabled system with the ability to sit as a cloud based service. Not only is VISCE a centralised hub for ANPR clients, but also generates a Vehicle Data Intelligence Repository and can be used as a real time Intelligence and Alerting server.

The VISCE Engine is a fully functional intuitive ANPR Server Back Office facility designed to provide three fundamental roles:

The first role is to provide a backbone communications platform to collect ANPR hotlists from local, national or bespoke sources and provide the formatting for synchronised dissemination of those hotlist databases to remotely deployed ANPR assets.

The second role is the conversion of ANPR data and images into an intelligence database, and provide the tools to query the intelligence database.

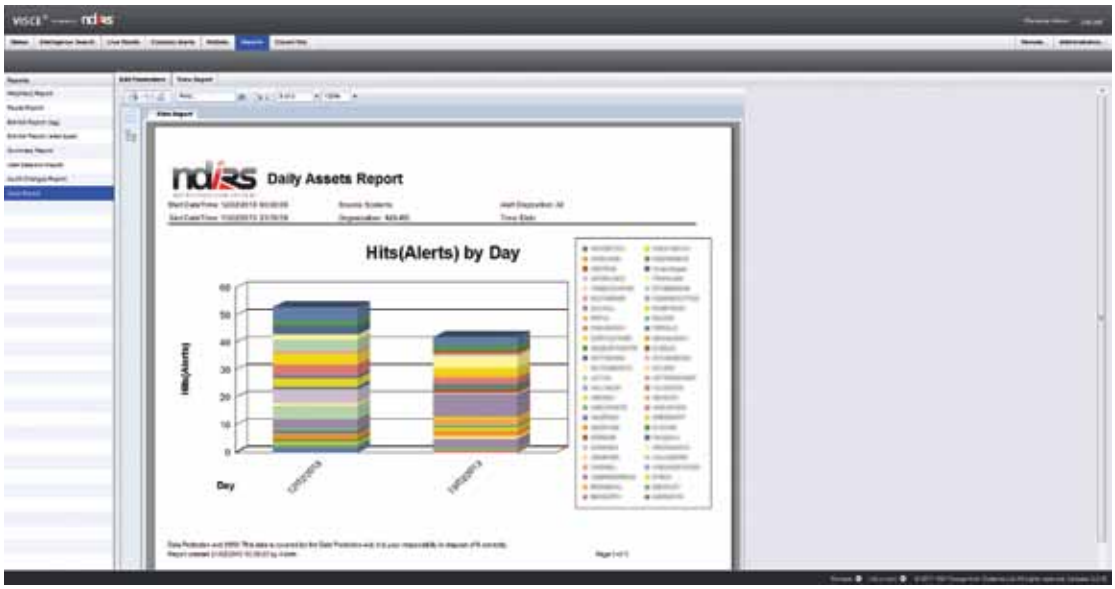
The intelligence database is designed to be of strategic importance as a tool to assist in the detection of crimes and crime trends sometimes long after they have occurred.

The third role is the ability to report accurately and concisely the resultant ANPR data in a user friendly way that can be easily interpreted by all and produce statistical reports to evidence such trends. VISCE uses the industry standard Microsoft SQL database and is an ideal choice for the management of all ANPR assets.

VISCE provides users with the ability to manage 'hotlists' and 'whitelists' of vehicles then view Live Reads and Alerts within the web browser, including the capability to plot them directly onto a map. The system can carry out PNC searches where applicable.

Features

- Cloud ready
- Advanced Analytics, including Convoy Analysis, Loop Analysis, Geo Analysis and Time Analysis
- Inter BOF communication
- Capable of handling local and national databases and bulk databases of over 50,000 records
- Sends Hotlist Alerts, Complex Alerts, and Camera Monitor Alerts by email
- Automatically check databases and synchronise the additions, deletions or alterations
- Create Complex Alerts to obtain real time intelligence
- Integrate with DVLA Make, Model and Colour database
- Web enabled with the ability to be viewed securely in any Web Browser
- Monitoring of the cameras to ensure that reads are being received
- Clone Plate Analysis
- Average Speed Analysis
- Generate reports to illustrate the data, using Crystal Reports and also export VISCE reports to standard formats for distribution



FIXED/ RE-DEPLOYABLE

*i*C320 Intelligent ANPR Camera and Processor

Features

- Fully integrated ANPR camera and processor
- Operates under extreme weather conditions
- Rapid deployable
- Inbuilt colour overview

The *i*C320™ is an advanced, multifunctional, Intelligent Automatic Number Plate Recognition (ANPR) camera and processor, providing outstanding ANPR performance. With cameras, illuminator and processor all fully integrated in a single sealed unit the *i*C320 offers ease and simplicity of installation. The *i*C320 has been designed to process and recognise number plates and related imagery transmitting results via its standardised communications interfaces. Communication options include Gigabit Ethernet, WiFi, 3G.

The *i*C320 ANPR system requires minimal installation and its discreet appearance has little impact on the environment, making it an ideal standalone ANPR surveillance system.

The *i*C320 camera components are based on the NDI-RS high performance C320™ camera featuring the use of high resolution optical zoom cameras, both for ANPR and high definition overview/contextual imaging. The zoom functionality allows the *i*C320 to be rapidly optimised to suit differing plate and environmental conditions. All camera settings can be controlled and adjusted remotely in real time.

The *i*C320 can be directly connected to any web based services such as the VISCE™ back office, centralised Law enforcement BOF and UTMC systems.

Day
✓
Night
✓
Capture Range
6m to 40m
Zoom
✓
Weight
Weight 7.5lbs (3.4kg)
Dimensions
Dimensions (H x W x D): With Sun Shield: 10.59" (269mm) x 7.72" (196mm) x 4.06" (103mm)
In built processor
✓

Specifications

Processor:	Texas Instruments Da-Vinci class DSP, DM8169, Dual Core, 1.2GHz	**Frame Rate:**	50fps
Memory:	1GB DDR3 RAM, 256MB Flash	**Illumination:**	Integrated High Power Pulsed LED
Storage:	16-32GB SD Card	**Operating System:**	Linux
Connectivity:	Gigabit Ethernet, WiFi, 3G	**Recognition Engine:**	ArtEye DSP
Camera options:	2X SONY Analogue Cameras with 18X Zoom 2X NDI HD Cameras, with Fixed Focal length	**Lane Coverage:**	Single with Analog, At least 2 with HD
Video Pre Processor:	Xilinx Spartan 6 LX150 FPGA, 256MB DDR2 RAM	**Power:**	12VDC/3A

C320 ANPR Camera

FIXED

Features

- Compact, lightweight camera
- High reliability and read accuracy
- Flexible range of camera modules and Illumination
- Operates under all weather conditions
- High environmental specification
- Compatible with CCTV equipment

Day
✓
Night
✓
Capture Range
6m to 40m
Zoom
✓
Weight
5.29lbs (2.4kg)
Dimensions
Dimensions (H x W x D): With Sun Shield: 4.33" (110mm) x 8.28" (210mm) x 9.45" (240mm)

The C320™ camera is a state-of-the-art Automatic Number Plate Recognition (ANPR) camera offering outstanding performance and flexibility making it suitable for any fixed ANPR application.

A principal feature is the use of high resolution optical zoom camera modules - both for ANPR and high definition overview / contextual imaging. Zoom functionality means the C320 can be rapidly optimised to suit differing plate and environmental conditions at capture points.

The C320 employs a number of features, such as improved processing gain and narrow band IR filtering, to mitigate traditional ANPR issues with bright sunlight and headlight blooming at night. The Graphical User Interface (GUI) allows for easy set-up and maintenance.

Globally, number plates have widely differing characteristics and contrasts. The C320 overcomes this problem by having a choice of Infrared (IR) wavelengths available; NDI will advise on the correct camera for your locale. Additionally the C320's zoom functionality enables the camera's field of view to be optimised to local plate sizes. Both IR pulse duration and illumination power can be adjusted to optimise performance. Depending on the configuration and IR wavelength, the C320 has a capture range of up to 130 feet (40 metres). Regardless of geography or deployment location the C320 is prepared for the challenge.

The C320 CCTV compatible camera can be easily moved from one location to another and the settings simply adjusted - avoiding the need for time-consuming, risky and costly re-lensing.

Camera Specifications

Lens:	18X Zoom f=4.1mm (wide) to 73.8mm (tele) F1.4 to F3.0 (48 - 2.7 deg)	**Communications:**	Bi-directional RS-232
Signal System:	CCIR/PAL	**Connections:**	RS-232, power and video
Image Sensor:	Exview HAD CCD	**Mounting Bracket:**	Full 3 axis gimballed mount
S/N Ratio:	More than 50 dB	**Operating Voltage:**	9 to 30 V DC - (DC variant only) 12V AC or 12-30V DC (Universal)
Electronic Shutter:	IR 1/600 to 1/10,000s, 8 steps Colour 1/50 to 1/10,000s, 11 steps	**Power Consumption:**	8 W average, 50 W peak
Video Output:	VBS: 1.0 Vp-p (Sync. negative)	**Minimum Illumination:**	0.7lux (F1.4, 1/50 50IRE) typical (colour)
IR Illuminator:	810nm, 850nm, 870nm, 940nm	**Environmental:**	Sealing: IP 68 Wind Loading 160kph / 45m/s
Integrated Light Sensor:	Enables day/night switching	**Accreditations:**	CE, FCC
Temperature:	Storage -20° C to +60° C Operational -10° C to +55° C		

FIXED/MOBILE

V220 ANPR Camera

Features

- Compact size and low profile
- Weatherproof to IP68
- 10x optical zoom
- Infrared image capture
- Colour contextual overview image capture
- Infrared wavelength options for worldwide use
- Image capture up to 20 metres

Engineered for mobile and fixed Automatic Number Plate Recognition (ANPR) applications, the V220™ camera delivers large functionality in a small package. With its compact form and low profile, the V220 is easily mounted on the top of a vehicle, discreetly installed within the vehicle for covert applications or alternatively used as a fixed site solution.

Available in several configurations for universal application, the standard V220 setup includes a dual-lens (infrared and colour), 10x optical zoom camera coupled with infrared illumination, available in a wide range of wavelengths to suit local plate designs and reflectivity. This also contributes to the V220's outstanding performance on older, corroded plates that may require more illumination.

The optical zoom feature allows the V220 to be adapted for specific operational requirements (i.e. car parking management, vehicle checkpoints, or high-speed road applications). This also allows the V220 to accurately identify and interpret different sizes of number plates from around the world.

The V220 camera uses two high-performance optical zoom camera modules with a built-in day / night switchover function for extra high quality overview imaging in poor lighting conditions and a dedicated infrared camera for high quality number plate capture.

The V220 is NPIA AES Spec 5 Issue 10 approved.

Day
✓
Night
✓
Capture Range
6m to 30m
Zoom
✓
Weight
3.1lbs (1.4kg)
Dimensions
Camera: 2.34" x 5.71" x 4.79" (59.5mm x 145mm x 121.6mm)

Camera Specifications

Lens:	10X Zoom f=4.2mm (wide) to 42mm (tele), F1.8 to F2.9 (46 - 4.6 deg)	**Communications:**	Bi-directional RS-232
Signal System:	CCIR/PAL	**Connections:**	RS-232, power and video
Image Sensor:	Exview HAD CCD	**Operating Voltage:**	9 to 16V DC
S/N Ratio:	More than 50 dB	**Power Consumption:**	8W average, 50 W peak
Electronic Shutter:	IR 1/600 to 1/10,000s, 8 steps Colour 1/50 to 1/10,000s, 11 steps	**Video Output:**	VBS: 1Vp-p (Sync. negative)
Resolution:	460 TV lines	**Environmental:**	Sealing: IP 68
IR Illuminator:	810nm, 850nm, 870nm, 940nm	**Temperature:**	Storage -20C to +60C 95% RH Operational -10C to +50C 80% RH
Minimum Illumination:	0.25lux (F1.8, 1/50 50IRE) typical (colour)	**Accreditations:**	CE, FCC, AES Spec 5
Integrated Light Sensor:	Enables day/night switching		

V1 In-Vehicle Colour Camera

MOBILE

Features

- Compact and unobtrusive
- High performance
- Easy to install and integrate
- Excellent low light performance
- Certified to all relevant UK standards

The V1™ is a miniature Automatic Number Plate Recognition (ANPR) colour camera designed to be mounted inside a mobile surveillance or ANPR vehicle.

Due to this unobtrusive design the V1 camera is the ideal choice for an in-vehicle surveillance and ANPR camera.

It is NPIA certified and complies with all current UK MOT regulations and UK VOSA standards. The camera is attached to the vehicle via a low profile stainless steel and aluminium bracket and the camera casing is manufactured from aerospace grade aluminium for an extremely tough and durable finish. The result is a lightweight camera ideally suited for mobile surveillance and ANPR operations. The small size of the V1 camera means it does not obstruct any part of the driver's vision and is designed to sit directly in front of the rear-view mirror. Larger cameras have proven unsafe and effectively block the driver's full field of view.

The camera has an outstanding low light capability and in most scenarios vehicle headlights provide sufficient lighting and scene illumination for night time ANPR operations too.

The V1 camera can be controlled by the operator through a standard RS-232 command control protocol or software Graphic User Interface (GUI) available via a Mobile Data Terminal (MDT) touch screen. The camera is manually adjusted by the operator to meet variable ANPR requirements for each vehicle. The V1's connector is compatible with existing systems for easy upgrade and can work with most type approved speed enforcement systems.

AES Spec 5 Issue 10 certification and conformance ensures that the V1 camera is suitable for use with UHF Tetra systems without interference.

The V1 camera is easy to install and maintain due to its bespoke design and flexibility.

Day
✓
Night
Capture Range
5m to 20m
Zoom
✓
Weight
300g
Dimensions
70 x 50 x 50mm (height with bracket 82mm)

Camera Specifications

Camera Model:	ND-V110C Colour Camera	**Min. Illumination:**	1.5lux (F1.8, 1/50s) typical (100 to 100,000 lux recommended)
Lens:	10 x Zoom 4.2mm (wide) to 42mm (tele) F1.8 to F2.9 (46 - 4.6deg)	**Communications:**	Sony VISCA protocol (TTL/RS-232C) 9.6kbps, 19.2 kbps, 38.4 kbps
Signal System:	PAL 460 TV lines resolution	**Connections:**	RS-232, power and video
Image Sensor:	EX-view HAD CCD	**Operating Voltage:**	9 to 14V DC
S/N ratio:	More than 50dB	**Power Consumption:**	1.6W (2.0W with motors active)
Electronic Shutter Speed:	1/1 to 1/10,000s (22 steps)	**Temperature:**	Storage -20C to 60C / 20 to 95% RH Operational 0C to 50C / 20 to 80% RH
Video Output:	VBS: 1Vp-p (sync negative)	**Accreditations:**	Automotive Directive 2004/104/EC (e-Marked) AES Spec 5 Issue 10

FIXED/MOBILE

VP-300 & VP-400 ANPR Processor

Features

- Intel Core i7 Processor
- 80GB ruggedised hard drive
- Compact size
- Ruggedised to withstand shock and vibration
- Wide temperature specification for all climates
- Intelligent power management
- Manages up to four (4) V220 ANPR cameras
- Optional wireless communications

The VP-300™ and VP-400™ are rugged Automatic Number Plate Recognition (ANPR) processors engineered to withstand the extreme environment and demanding conditions.

Utilising an Intel Core i7 processor, the VP accepts inputs from up to four (4) dual-lens V220™ ANPR cameras. The VP processor receives images from the cameras and uses the powerful Talon™ ANPR recognition engine to locate plates and interpret these into useful data. VeriPlate™ user interface software checks this data against any number of hotlists managed by the VISCE™ Back Office.

The VP processors support up to eight (8) separate video inputs (4 dual-lens ANPR cameras). The VP processors have local storage capability of up to 2 million time stamped images with all relevant metadata, including GPS coordinates, the interpreted plate read, a unique transaction identifier, and more. Hotlists may be securely stored and managed by direct connection to any web based service such as VISCE™ or a national Back Office Facility (BOF).

VP Processors	
Outdoor	✓
Indoor	✓
Vehicle	✓
Operating System	Windows
Processor	Intel Core i7 620M 2.66GHz, 4GB RAM, 80GB Rugged Hard Drive
Weight	9lbs (4kg)
Dimensions	107mm x 248mm x 191mm with vibration absorbing mount

Specifications	VP-300	VP-400
USB:	4 x USB 2.0 High Speed Ports	
Ethernet:	2 x RJ45 10/100/1000 LAN	
Serial Ports:	1 x RS-232 Port on Front Panel	
		4 x RS-232 Ports on the Back Panel (one with RS-422/485 support)
Video:	VGA, DVI and HDMI	
Audio:	Stereo Audio In / Out Connector	
Camera Inputs:	Support for 4 dual ANPR cameras	
Power Management	Built-In Power Management Unit with Intelligent Power Management	
WAN:		3.5G (HSPA/HSDPA)
GPS:		Multimode GPS 1575MHz
WiFi:		Dual band 802.11 a/g/n
Digital IO:		1 input and 2 output GPIO
Temperature:	Operating -10C to +60C, 90% RH non-condensing Storage -40C to +85C, 90% RH non-condensing	
Power Input:	8V - 16V DC, 10A typical at full load	

SC-IV Ruggedised ANPR Processor

FIXED

Features

- Intel Core i7 processor
- 40 GB solid state hard drive
- Windows embedded OS
- Processes up to four (4) lanes of high speed, high density traffic
- Weatherproof and ruggedized for extreme environments
- Optional GSM / GPRS / 3G Communications

The SC-IV™ is a powerful, compact and ruggedised Automatic Number Plate Recognition (ANPR) processor for roadside deployment and centralised processing of up to four (4) ANPR cameras.

The SC-IV supports up to eight (8) separate video inputs (4 dual-lens ANPR cameras), providing the unique capability to generate plate recognition data from both the colour overview image and infrared (IR) number plate patch using NDI's powerful and proven Talon™ ANPR Recognition Engine, therefore making the SC-IV a versatile and cost-effective fixed ANPR solution.

The SC-IV has local storage capability of up to 2 million time stamped images with all relevant metadata, including GPS coordinates, the interpreted plate read, a unique transaction identifier, and more. Hotlists may be securely stored and managed by direct connection to any web based service such as VISCE™ or a national Back Office Facility (BOF).

The SC-IV is IP67 rated and is engineered to operate in extreme heat and temperature conditions up to 55C. All captured data is easily transmitted using LAN/WIFI or via optional GSM/GPRS/3G/4G.

Powered from a standard mains power supply, the SC-IV provides for fast and easy installation with no extra costs for additional street furniture.

Outdoor
✓
Indoor
Vehicle
Operating System
Windows Embedded Standard
Processor
Intel Core i7 Processor
Weight
15lbs (7kg)
Dimensions
356mm x 235mm x 96mm

Specifications

Video Capture:	8 Channel PCIe FG @ 200fps (frames)
Power:	85-264V AC 47 63Hz
Current:	1.4A (typical at 100V AC) / 0.7A (typical at 200V AC)
Indicators:	Power on (green LED) / Disk Activity (red LED)
Environmental:	Sealing IP 67
Temperature:	Storage -40C to +85C / Operational -10C to +55C
Accreditations and approval:	CE, FCC

Connections

Cameras:	4 x Dual Camera connections
Antenna:	2.4/5.8GHz WiFi
Ethernet:	10/100/1000 Base-T
USB:	USB 2.0 (for setup and test)
Power Consumption:	115/230V AC power input
VGA:	2048 x 1536 @ 75Hz (for set up and test)

FIXED

SABRE Powerful Industrial ANPR Computer

The Sabre™ Unit is a powerful and reliable industrial computer specifically designed and configured for Automatic Number Plate Recognition (ANPR) image processing. Featuring a powerful multi-core processor, each Sabre unit is capable of processing four (4) lanes of high speed, high density traffic with complementing overview images.

Designed to be installed into a CCTV control room or surveillance office, the Sabre is a powerful Plate Recognition Unit (PRU). For mission critical systems the Sabre can be supplied with a redundant power supply.

The latest generation Talon™ ANPR software and supporting frame grabbers are installed and when combined with the C320™ cameras, exceptionally high levels of ANPR recognition can be obtained. Each Sabre unit is powered by a standard mains electricity supply and additional UPS systems can be supplied upon request.

Features

- Powerful and Reliable 'Rack Mount' ANPR Hardware
- Multi-Core Processor
- High Speed 'Multiple Input' Frame Grabbers
- Processes 4 Lanes of IR and Overview Traffic Simultaneously
- Minimum 80Gb Hard Drive
- Minimum 2Gb RAM

Outdoor
Indoor
✓
Vehicle
Operating System
Microsoft Windows XP Embedded or Windows 7
Processor
Multi-Core
Weight
35lbs (16kg)
Dimensions
481mm x 450mm x 176mm

Specifications

Form factor:	4U 19" Rack Mount Chassis	**LAN:**	Intel Gigabit (10/100/1000) Ethernet – RJ45
RAM:	4GB DDR3 1333MHz or 1066MHz (expandable to 16GB)	**Power Supply:**	550W min
Hard Disk:	2 x 500GB min. in removable cradles	**Cooling:**	4 x chassis fans (1 PSU mounted), 1 x Processor fan
Optical Drive	24 x DVD+/-RW (dual +/-R)/RAM	**Video grabbers:**	4 channel real time video capture card 200fps (CCIR), 4 channel multiplexed video capture card 50fps (PAL)
Graphics:	VGA, DVI-D, HDMI	**Operating Temperature:**	0 to 40C operating / -40C to +60C non-operating
Audio:	Intel High Definition Audio	**Regulatory Compliance:**	CE marked in compliance with the provisions of European Directives 2004/108/EC and 2006/95/EC EU RoHS Directive 2002/95/EC
Expansion:	1 x PCI bus, 2 x PCI Express 2.0 x1, 1 x PCI Express 2.0 x16 (for dual core processors)	**Accreditations:**	CE, FCC
Peripherals:	2 x USB 2.0 - front panel, 6 x USB 2.0 – rear panel		

TG-X200 Frame Grabber

The TG-X200™ is a USB frame grabber specially designed to interface Automatic Number Plate Recognition (ANPR) cameras to laptops or Mobile Data Terminals via high-speed USB. The TG-X200 can be connected to any high-speed USB port on a computer with a Windows XP or Windows 7 Operating System, and incorporates a dual USB-to-RS-232 converter to communicate with up to two (2) dual-lens (infrared and colour) ANPR cameras without the need for additional cables. On-board memory of 64MB provides buffering in the event the host computer interrupts the data flow.

The TG-X200 frame grabber device comes built for optimised usage, and as such utilises the custom-built X200 device driver to allow optimum performance. The TG-X200 has also been designed for ease of use, and can also be loaded to connect using DirectX, which is an industry standard. This ensures that the maximum number possible of image processing solutions can use the TG-X200 as a plug and play device. If being used along with the NDI Recognition Systems engine, the X200 device drivers are already inbuilt into Talon™ to ensure instant access.

Features

- Compact size for easy deployment in patrol vehicles
- Convenient 12V power connection
- Leverages existing hardware for cost-effective and value-added ANPR
- Two (2) V220™ ANPR camera connections
- USB interface to MDT / laptop
- 64MB On-board memory for buffering
- Intelligent power management for camera(s) with low voltage cut off to prevent battery drain

Specifications

TG-X200 Power:	12V DC
Camera Power:	12V DC, 1.2A Average via 12V Power Cord
Video Format:	PAL @ 25 frames per second (minimum)
Environmental:	IP40
Operating Temperature:	-40 to +185F (-40 to +85C)
Dimensions:	3.60" x 2.60" x 1.10" (105 x 77 x 38.5mm)
Weight:	0.55lbs (0.25kg)
Housing:	Aluminium Machined Housing, Black Anodized
On Board Memory Buffer:	64MB

Company Overview

In response to a number of high profile terrorist attacks in the UK in the early 1990's, a British technology development company was briefed by the UK Government to develop a high performance Automatic Number Plate Recognition (ANPR) system to be used in all weathers, visibilities and at high speeds. The system was designed to assist in the prevention of terrorist attacks and to deny terrorists the use of the road.

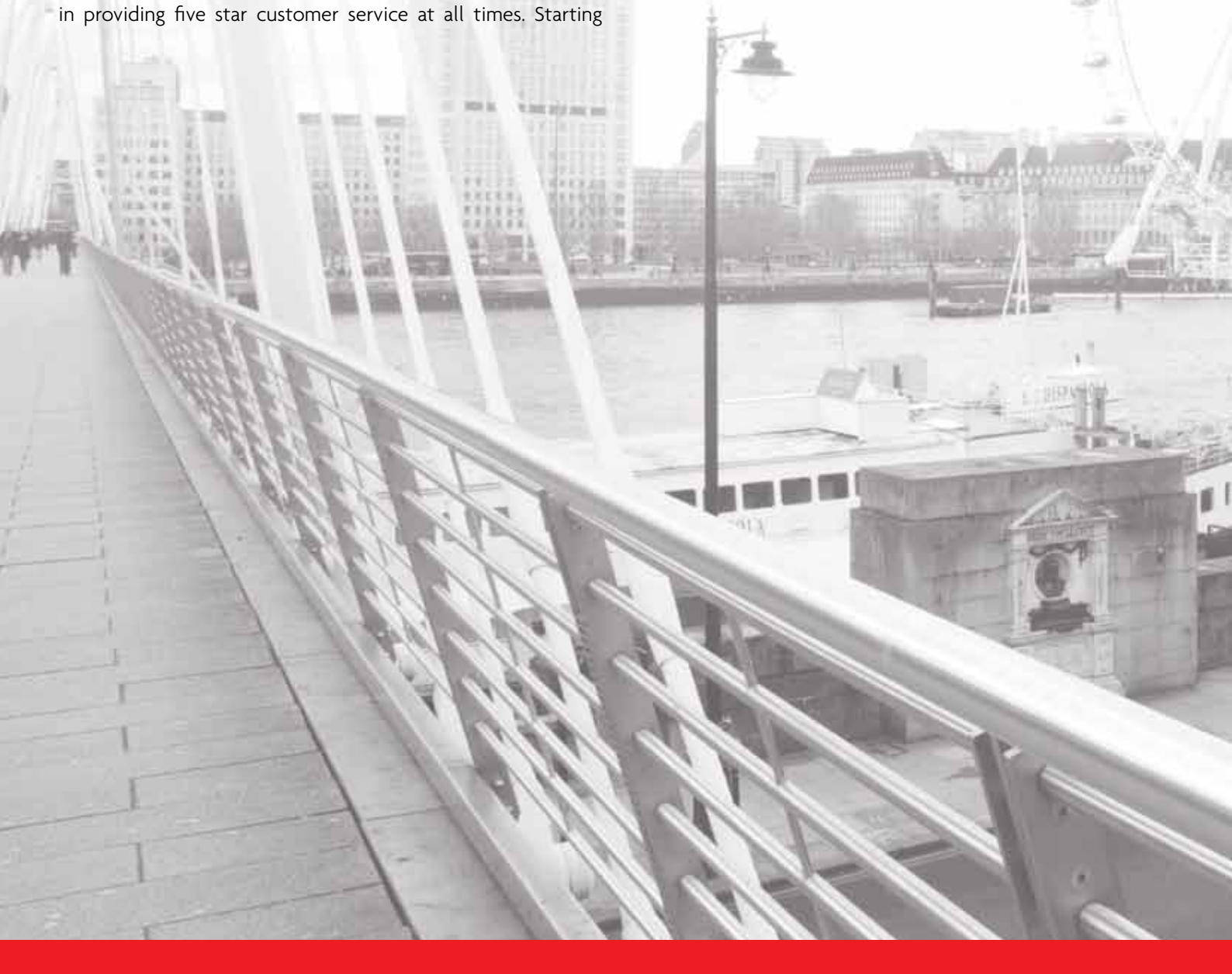
Today NDI Recognition Systems Ltd (NDI-RS), part of the Dacoll Group founded in 1969, is a leading international provider of security, surveillance and traffic management solutions. With Headquarters located in Nantwich, Cheshire (UK) and Longwood, Florida (US), NDI-RS is suitably positioned to provide a flexible and comprehensive variety of systems using the most innovative hardware and software technologies available today.

NDI-RS employs over 50 highly qualified members of staff globally, all of whom are dedicated to the design, development and manufacture of our ANPR systems.

As a global provider of ANPR solutions, NDI-RS prides itself in providing five star customer service at all times. Starting with your initial communications with our dedicated customer service team, through installation with our on-site supportive and experienced engineers and continuing throughout the life of your ANPR system, our support team always guarantees cost-effective maintenance coverage.

Our product portfolio includes the Talon™ ANPR software system, Access Control and the VISCE™ Back Office (BOF) data management server solution and a complete range of state-of-the-art intelligence technology including ANPR cameras and processors. These products provide accurate cost-effective systems and support for the Police, Military, Traffic and, Law Enforcement organisations as well as commercial markets around the world.

Our equipment is at the heart of the majority of counter terrorism sites within the UK, including the "Ring of Steel" around the City of London and iconic government buildings and is responsible for safe guarding Great Britain's key critical national infrastructure.



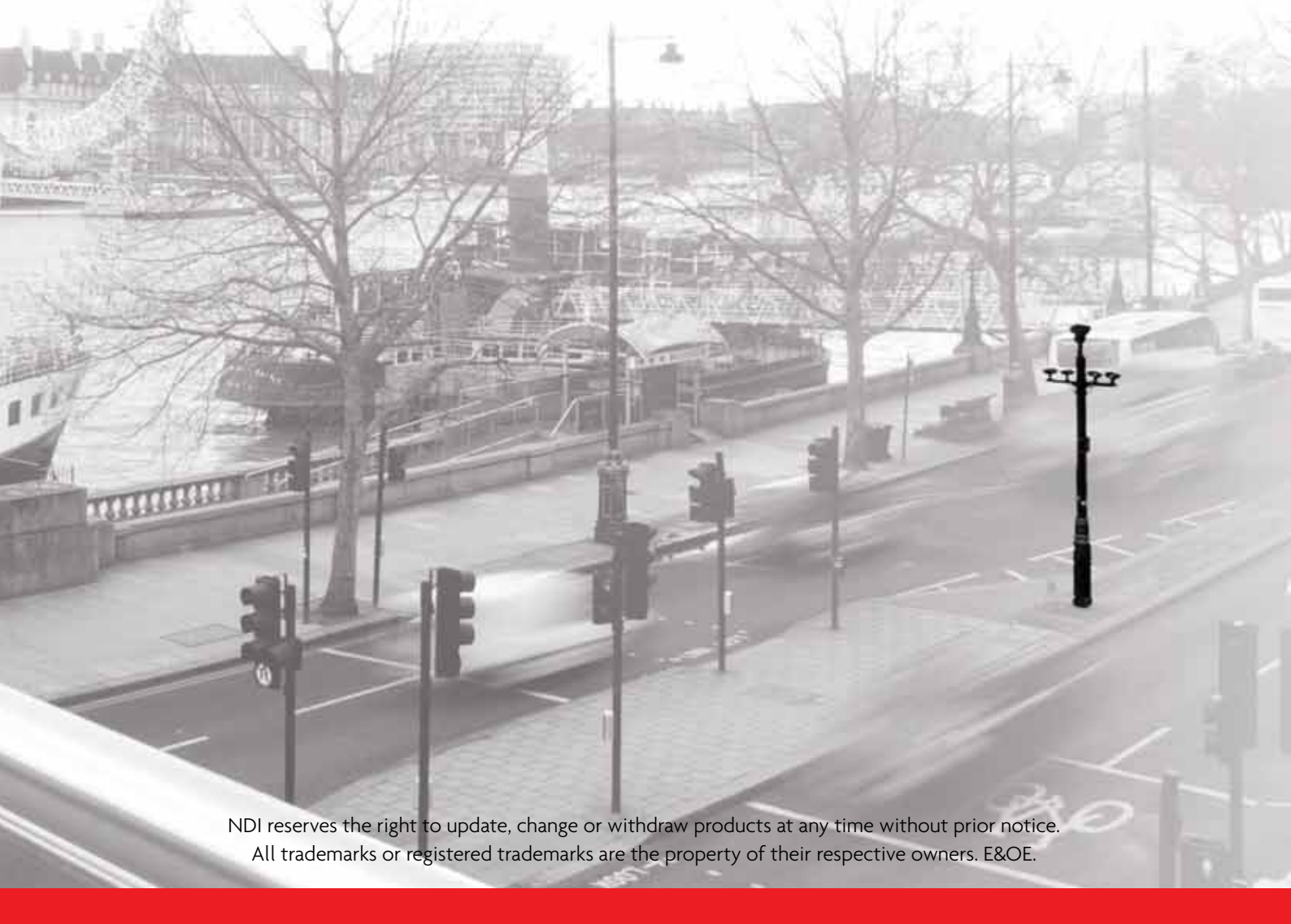
NDI-RS Installations

Throughout the UK & Internationally our client base is expanding rapidly, installations include systems in:

- England – City of London – Ring of Steel
- England – London Metropolitan Police -Ring of Steel - Government Security Zone
- England – Manchester Ring of Steel
- England – National Exhibition Centre, Birmingham
- England – Westfield Shopping Centre, London
- England – Ford Motor Company, Dagenham and Speke
- England – University of Reading
- Ireland – Fixed sites
- Spain – Guardia Civil
- Romania – Police mobile ANPR systems
- Bulgaria – City centre police ANPR systems
- Cyprus – Border crossing point
- Dubai – Exclusive hotel chains
- Malta - Congestion Charging
- Mexico – Police mobile systems and multiple fixed sites
- Australia – Fixed and mobile ANPR systems
- Germany – Port systems
- Malaysia – Road tolling
- Sweden – Port installation
- Libya – Security system
- Afghanistan – Military system

NDI has installed ANPR systems in law enforcement sites throughout the US. Our rapidly growing US customer base includes over 100 law enforcement agencies, such as:

- Department of Criminal Justice Services (DCJS), New York
- Westchester County Intelligence Agency, New York
- Yonkers Police Department, New York
- South Carolina Law Enforcement Division (SLED)
- Charlotte & Mecklenburg Police Department, North Carolina
- Polk County Sheriff's Office, Florida
- Palm Beach County Sheriff's Office, Florida
- Osceola County Sheriff's Office, Florida
- Lighthouse Point Police Department, Florida
- Daytona Beach Police Department, Florida
- Monroe County Sheriff's Office, Florida



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NDI Recognition Systems Limited

NDI House
Barony Court
Nantwich
Cheshire
CW5 5RD

Telephone: 0844 381 4171
Fax: 0127 062 5285

NDI Recognition Systems Limited

385 Commerce Way
Longwood
Florida
32750-5157
USA

Website: www.ndi-rs.com
Email: sales@ndi-rs.com

Registered in Scotland No. SC346849
Registered Office: Dacoll House, Gardners Lane, Bathgate, West Lothian EH48 1TP